Vascular Tissue Challenge

Completed Technology Project (2016 - 2020)

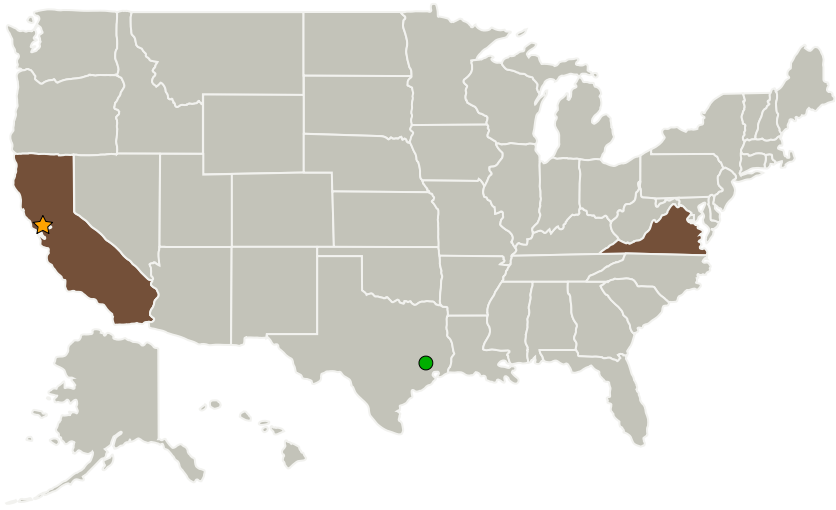
Project Introduction

Produce viable thick-tissue assays that can be used to advance research both on earth and the ISS National Laboratory.

Anticipated Benefits

Vascularization is one of the great challenges that tissue engineering faces in order to achieve sizeable tissue and organ substitutes that contain living cells. ...tissue or organ substitutes in which any dimension, such as thickness, exceeds 400 µm need to be vascularized to ensure cellular survival.

Primary U.S. Work Locations and Key Partners



Vascular Tissue Challenge

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Organizations Performing Work	Role	Type	Location
★Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Department of Defense(DoD)	Supporting Organization	US Government	Washington, District of Columbia
Department of Health and Human Services	Supporting Organization	US Government	
Florida Institute of Technology	Supporting Organization	Academia	Melbourne, Florida
●Johnson Space Center(JSC)	Supporting Organization	NASA Center	Houston, Texas
Methuselah Foundation	Supporting Organization	Industry	Springfield, Virginia
National Institute of Health(NIH)	Supporting Organization	US Government	
National Science Foundation	Supporting Organization	US Government	
Pennsylvania State University-Main Campus(Penn State)	Supporting Organization	Academia	University Park, Pennsylvania
Rice University	Supporting Organization	Academia	Houston, Texas
University of Michigan-Ann Arbor	Supporting Organization	Academia	Ann Arbor, Michigan

Continued on following page.

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Prizes, Challenges, and Crowdsourcing

Project Management

Program Director:

Amy P Kaminski

Program Manager:

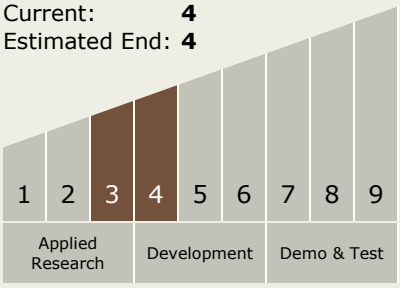
Monserrate C Roman

Project Manager:

Monserrate C Roman

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



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Organizations Performing Work	Role	Type	Location
Veterans Affairs	Supporting Organization	US Government	
Wake Forest University	Supporting Organization	Academia	Winston-Salem, North Carolina
Yale University	Supporting Organization	Academia	New Haven, Connecticut

Co-Funding Partners	Type	Location
Space Technology Mission Directorate(STMD)	NASA Mission Directorate	

Primary U.S. Work Locations	
California	Virginia

Project Transitions

June 2016: Project Start

September 2020: Closed out

Closeout Link: https://www.nasa.gov/directorates/spacetech/centennial_challenges/vascular_tissue/about.html

Project Website:

https://www.nasa.gov/directorates/spacetech/centennial_challenges/index.htm

Technology Areas

Primary:

- TX01 Propulsion Systems
  - TX01.3 Aero Propulsion
    - TX01.3.7 Reciprocating Internal Combustion

Target Destinations

The Moon, Mars, Earth